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July 9, 1996

Federal Communications Commission
Office of Secretary

William F. Caton
Secretary
Federal Communications Commission
1919 M Street, N.W. - Room 222
Washington, D.C. 20554

RE: Ex Parte Notice
CC Docket No. 96-185

95-185

Dear Mr. Caton:

The attached material was sent today to Walter Strack of the Wireless Telecommunications Bureau at his request. This material was previously submitted by the United States Telephone Association in CC Docket No. 80-286, Amendment of Part 36 of the Commission's Rules and Establishment of a Joint Board.

An original and one copy of this ex parte notice are being filed in the Office of the Secretary. Please include this notice in the public record of these proceedings.

Respectfully submitted,



Mary McDermott

Vice President -

Legal & Regulatory Affairs

attachment

cc: W. Strack

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POTENTIAL IMPACT OF COMPETITION
ON
RESIDENTIAL AND RURAL TELEPHONE SERVICE



United States Telephone Association

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JULY 21, 1993

OVERVIEW

BACKGROUND

In an effort to assess the impact of competition on continued affordability of residential and rural telephone service, USTA has commissioned a series of studies which are enclosed.

I. MONSON/ROHLFS

Calvin Monson and Jeffrey Rohlfis of Strategic Policy Research (SPR) highlight the dilemma faced by public policymakers as they seek to open exchange telecommunications markets to greater competition.

Public telecommunications policy embodies a variety of goals. These include promoting development of a modern national telecommunications infrastructure, promoting competition in telecommunications markets, and maintaining universal service through reasonable rates for rural areas and residential customers. Absent a policy framework that reconciles these goals, they contain significant and deleterious conflicts.

The study conducted by SPR shows that the interexchange access and toll services provided by Local Exchange Carriers (LECs) are priced at a level that produces some \$20 billion of contribution in excess of their long run marginal costs. This circumstance is an integral part of the regulatory fabric that has maintained universal service through subsidized rates for rural areas and residential customers.

II. BELLCORE

To provide public policymakers with further insight on this circumstance, USTA asked Bellcore to compile data from studies previously done by its client companies to assess contribution flows between major groupings of LEC-provided services. This analysis indicates, on an embedded fully-distributed basis, that contributions from other LEC services are needed to cover

a shortfall in local residence access services of more than \$17 billion. The analysis also confirms that LEC-provided interexchange access and toll services are the primary providers of this contribution. Absent this contribution flow, rates for local residence customer access would approximately double. The impact could be even worse in some rural areas. A copy of the Bellcore analysis also is attached.

III. USTA INTERCONNECTION EXPOSURE STATISTICS

Opening exchange telecommunications markets to greater competition, without establishing a plan for new sources of contribution and allowing LECs to restructure their toll and interexchange access prices, will lead to unforeseen harmful increases in rural and residential rates.

Proceedings currently in progress at the FCC contemplate opening the switched access services of Tier 1 LECs to collocation and expanded interconnection. As indicated above, such services are a primary source of contribution under present regulatory ratemaking rules. Studies of LEC traffic distribution indicate that collocators can address some 80 percent of LEC access demand by locating in only 14 percent of LEC switching offices. This indicates the potential for collocators to address the vast majority of access traffic without having to incur the costs of serving the large number of rural and suburban locations. Accordingly, the impact of such unplanned changes in policy ground rules can be swift and significant. The Danforth/Inouye Bill (S.1086) would put further pressure on revenue sources that support universal service.

CONCLUSION

This information provides a wake up call to public policymakers to develop a comprehensive plan. Unless such action is taken now, there is a striking parallel with what has happened to the railroad industry. In a world where the "lifeblood of commerce" is information moving over "electronic rails" -- and a nation's competitiveness is virtually determined by its telecommunications infrastructure -- this is a matter warranting sober consideration in public policy.

**THE \$20 BILLION IMPACT
OF LOCAL COMPETITION
IN TELECOMMUNICATIONS**

Calvin S. Monson

and

Jeffrey H. Rohlf

July 16, 1993

EXECUTIVE SUMMARY

THE \$20 BILLION IMPACT OF LOCAL COMPETITION IN TELECOMMUNICATIONS

Calvin S. Monson
and
Jeffrey H. Rohlf

Careful planning is required as public policymakers introduce competition into the local exchange marketplace. Competition will surely cause today's artificial pricing structure to collapse. The industry will have approximately \$20 billion at stake when that happens.

Policymakers need to plan *now* for a smooth transition to a competitive pricing. That is the only way to avoid serious dislocations for the industry and its customers. Ignoring this problem will result in a repetition of the painful history of railroad regulation in the United States. Once again, customers without viable alternatives will suffer the most.

THE \$20 BILLION IMPACT OF LOCAL COMPETITION IN TELECOMMUNICATIONS

Calvin S. Monson
and
Jeffrey H. Rohlfs¹

I. INTRODUCTION

Nowadays, one can hardly pick up a newspaper and not find a story describing yet another breakthrough in communications technology. Each breakthrough promises yet more upheaval in this dynamic sector of the economy. In this paper we focus on the implications of that upheaval. We seek to provide public policymakers with a clear sense of the portentous consequences of regulatory policies that are currently under consideration.

Because of advances in technology, customers now have alternatives to many services traditionally supplied by telephone companies. Telephone companies will either have to respond aggressively to competition or lose much of their business over the next several years. Either course of action will have major impacts on the industry and its customers.

To comprehend the significance of these changes, policymakers need to appreciate the context in which these changes will occur. Regulation of telephone pricing has historically sought to control monopoly power, but it has *not* sought to replicate the prices that would be charged in a freely-functioning competitive market. Instead, regulatory policy has embodied a variety of other goals ranging from promotion of universal service through maintenance of low rates (often below cost) for rural customers and residential customers, more generally, to subsidization of small interexchange carriers by "equalizing" the price of access. The result is a

¹The authors are principals of Strategic Policy Research, Inc. Mr. Monson was formerly Director of Telecommunications Policy at the Illinois Commerce Commission; Dr. Rohlfs was formerly Department Head of Economic Modeling, AT&T Bell Laboratories. This study was commissioned by the United States Telephone Association, but the views are solely those of the authors.

regulatory pricing structure that varies substantially from what effective competition would produce.

Competition will have a myriad of effects, many, perhaps most, of which cannot be predicted in advance. We can, however, confidently predict that with effective competition, today's artificial pricing structure will collapse. Only a competitive price structure can survive under effective competition. Artificial price structures contrived by regulators cannot survive, no matter how lofty the underlying goals.

In this paper we measure the "seismic intensity" of the collapse of the current price structure. We seek to focus the attention of policymakers on the critical importance of decisions that are now being made or contemplated. As structural changes in the telephone industry are implemented, policymakers need to consider the consequences of their decisions and plan carefully how to deal with those consequences. In particular, policymakers need to plan so that widely-available, high-quality telephone service can continue to be provided when the current rate structure collapses.

Competitive Entry

The technology that is used by telephone companies (e.g., digital switching and fiber optic systems) is available to entrants as well. If interconnection is mandated, scale economies will become unimportant. Entrants will not need to construct an entire network but can build only the piece parts with which they choose to compete. Consequently, entrants will have approximately the same long-run marginal costs as telephone companies. Indeed, competitors may have *lower long-run* marginal costs, since they do not have any obligation to meet demand that is costly to serve.

Under effective competition, prices in competitive markets ~~will decline~~ toward long-run marginal costs. This conclusion follows directly from our observation that with interconnection, scale economies will be much less important. Note that long-run marginal costs include some costs (e.g., depreciation and return to capital) that are overhead costs in the short run.

Under competition with many competitors, the telephone company will have to lower its prices toward long-run marginal cost or ultimately lose the business altogether. As it lowers price, the margin between price and long-run marginal cost will be drastically reduced.

If the telephone company does *not* respond to competition, it eventually loses the business. Its long-run monetary loss is the margin between price and long-run marginal cost. The

customer no longer pays the telephone company the revenue associated with that service. The telephone company avoids the cost of providing the service to that customer. The telephone company's *net* loss is the margin between price and long-run marginal cost. If the telephone company chooses this latter course of action, it will not, of course, lose all the business right away. Within a decade, however, the telephone company would become a minor participant in the local telecommunications market. Furthermore, the costs that could be avoided in the short-run as a result of losing business are much less than the costs that can be avoided in the long run. For example, long-run costs, such as depreciation of current capital, cannot be avoided. Consequently, the short run losses may be much greater than the margin between price and long-run marginal cost.

The amount of money at stake as a result of competitive entry is the "contribution" from competitive services; i.e., the margin (between price and long-run marginal cost) times current output. That contribution will inevitably decline in the long run as a result of competition.

In this paper we measure the contribution from some services that will be subject to increasing competition over the next several years; namely, switched access services provided to long-distance carriers and intraLATA message toll service.² According to our calculations, the contribution for these services is at least \$18.3 billion, but not more than \$21.1 billion. Hence we estimate that a net revenue flow of approximately \$20 billion per year is at stake as a result of competition. On average, it is over \$12 per month for every access line in the United States. The \$20 billion in contribution primarily goes to reduce prices of other services. Little, if any, of the \$20 billion goes to earnings of the telephone companies because in our calculations return to capital is included as part of the cost of providing service. Indeed, the contribution of \$20 billion per year from switched access and intraLATA toll cannot be construed to be earnings because it is *twice the earnings* of the entire telephone industry.

We conclude that the impact of competition will be dramatic. As more and more of the \$20 billion per year is competed away, compensating adjustments of comparable magnitude will have to be made in other rates. If telephone companies are to continue covering their cost of capital, *all* the lost contribution must be made up by raising prices of services that are not subject to intense competition. If the profitability of telephone companies declines as a result of competition, they will be less able to attract capital to invest in infrastructure. In any event, most

²Our calculation does not include the contribution from other services (e.g., special access and intraLATA private line) that are subject to competition.

of the lost contribution from competitive services will *have* to come from repricing, because the contribution is so large, relative to the earnings of the industry. Since the competitive impact is so large, policymakers should plan carefully how the compensating adjustments are to be implemented.

The historical analogy of railroad regulation is especially apt. In the early part of this century, public policymakers encouraged trucking as a competitive alternative to railroads. In retrospect, trucking has provided enormous benefits to the economy. Policymakers did not, however, plan adequately for the effect of competition on the railroad industry. In particular, public policy towards railroads largely ignored competition and continued to tightly regulate the industry. The result was catastrophic for rail transportation in this country. Quality rail transportation was largely destroyed, and customers with no viable alternatives were hurt the most. It was only after rail service had grossly deteriorated and many major railroads had gone bankrupt that appropriate public policy (the Staggers Act) was implemented.

Telecommunications policymakers need to make sure that history does not repeat itself. What is required is appropriate planning from the start — not after it is too late.

II. BACKGROUND

In a monopoly environment, regulators could achieve certain policy goals through the pricing of various telephone services. For example, the price of basic residential service has been held down, generally below cost; funding for this subsidy has been provided primarily by access and toll services, which are priced far above cost. Business services also contribute to subsidizing residential service. Rates for service in rural areas are subsidized by rates in urban and suburban areas. The price of access to various long-distance carriers is equalized by requiring local telephone companies to charge the same amount regardless of a carrier's volume. These pricing schemes provide profitable opportunities for entry into the market that is providing the subsidy; so it is not surprising that entry has been occurring. As exchange markets become more competitive, however, these artificial pricing schemes cannot be sustained.

Policymakers on the federal and state levels are currently opening markets to increasing competition — markets that telephone companies have traditionally served. The Federal Communications Commission (FCC) has already ordered Tier I large local telephone companies to

offer expanded interconnection for dedicated lines.³ It has also announced a tentative proposal to open up the much larger markets for switched services to greater competition.⁴ The FCC acted, in part, because competing access providers are building sophisticated fiber optic networks to serve business customers in a burgeoning list of cities across the country. Cable television operators are similarly upgrading their networks with the announced intent of competing directly with local telephone companies for telephone services. New radio-based services are also being planned that will provide additional competition. A variety of states, including New York, Illinois, and California, have taken steps to facilitate competition by implementing unbundling, collocation, and interconnection.

As a result of the competition that has already occurred, customers that account for a large percentage of total long-distance usage now have alternatives to their telephone company for intraLATA toll and for access to a long-distance carrier.⁵ The FCC's recent order will greatly facilitate such competition. The Commission now requires telephone companies to allow competing access providers to install equipment in telephone company buildings and to use telephone company lines to extend service where the competing access providers have not yet built their networks. By installing their own equipment in telephone company buildings, alternative access providers will be able to compete with the telephone companies in providing switched services. When that happens, the traditional telephone industry will have approximately \$20 billion per year at risk.

While acting aggressively to stimulate competition for services that telephone companies have traditionally provided,⁶ the FCC has made only minor changes in its pricing rules so that

³Federal Communications Commission, *In the matter of Expanded Interconnection with Local Telephone Company Facilities and Amendment of the Part 69 Allocation of General Support Facility Costs*, CC Docket No. 91-141, CC Docket No. 92-222, Report and Order and Notice of Proposed Rulemaking (adopted Sept. 17, 1992, released Oct. 19, 1992).

⁴Federal Communications Commission, *In the matter of Expanded Interconnection with Local Telephone Company Facilities and Amendment of Part 36 of the Commission's Rules and Establishment of a Joint Board*, CC Docket No. 91-141 Transport Phases I and II, CC Docket No. 80-286, Second Notice of Proposed Rulemaking (adopted Sept. 17, 1992, released Oct. 16, 1992).

⁵This is discussed at length elsewhere. See, e.g., *Local Competition and Interconnection: A Staff Report to the Illinois Commerce Commission* (Springfield, Ill.: Illinois Commerce Commission, 1992).

⁶Federal Communications Commission, *In the matter of Expanded Interconnection with Local Telephone Company Facilities and Amendment of Part 36 of the Commission's Rules and Establishment of a Joint Board*, CC Docket 91-141 Transport Phases I & II and CC Docket No. 80-286, Second Notice of Proposed Rulemaking (continued...)

telephone companies can respond to competition.⁷ More importantly, it has not squarely addressed the larger issue of the impending collapse of the existing artificial pricing structure. The dollars will have to be recovered somewhere if telephone companies are to continue to provide widely-available, high-quality service.

III. THE COMPETITIVE IMPACT

Increased competition will benefit some users and harm others. In this paper we have not attempted to identify winners or losers. Instead we simply estimate the amount of money that is potentially in play. We measure, in summary fashion, the net revenues from switched access and intraLATA message toll services.

The figure on the following page illustrates our results. Further detail is given in the appendix.

This figure shows gross revenues at risk from intraLATA toll, interstate access, and inter-LATA intrastate access. The overall sum is \$27.2 billion. These figures are derived from data that are published by the FCC.

The figure also shows two estimates of costs of these competitive services. They reflect what telephone companies will save in costs as they lose business to competitors.⁸ We estimate that the costs, corresponding to the \$27.2 billion per year in gross revenues, are \$8.9 billion to \$6.0 billion.

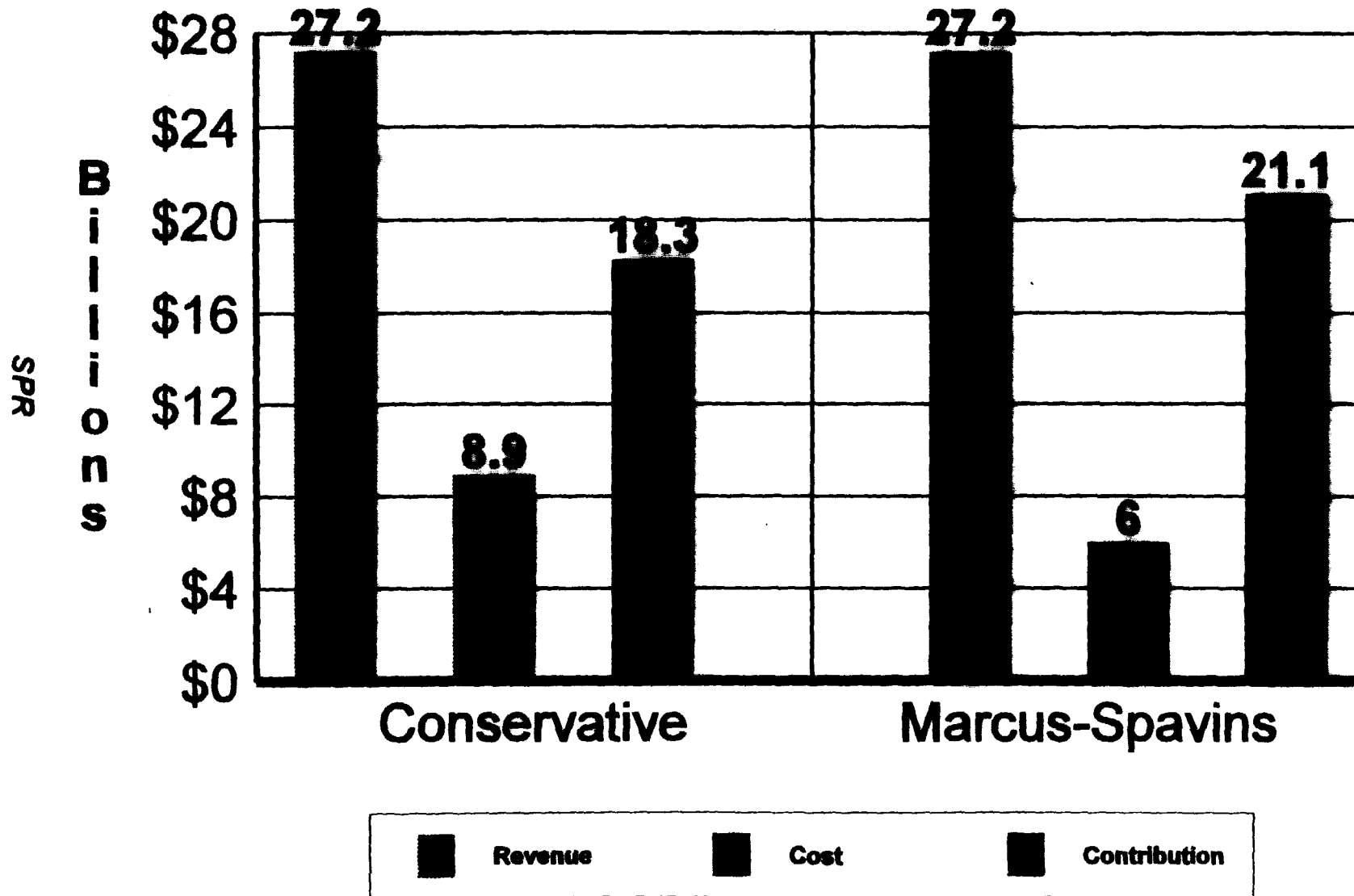
⁶(...continued)

(adopted 9/17/92, released 10/16/92). ("We tentatively conclude that expanded interconnection for switched transport should become effective no later than the interim transport rate structure does. The implementation of expanded interconnection should not await the completion of other proceedings involving access charge or separations rule changes." ¶37.)

⁷Federal Communications Commission, *In the matter of Transport Rate Structure and Pricing and Petition for Waiver of the Transport Rules filed by GTE Service Corporation*, CC Docket No. 91-213, Report and Order and Further Notice of Proposed Rulemaking (adopted Sept. 17, 1992, released Oct. 16, 1992). ("We must, however, proceed cautiously in this area in order to ensure that we do not endanger the availability of pluralistic supply in the interexchange market." ¶ 3.) The Commission faces a dilemma. Effective exchange competition will undermine its ability to maintain an economically inefficient access pricing structure to subsidize less efficient long-distance carriers.

⁸These are *long-run* cost savings. Savings in the short run may be much lower. Hence, the lost contribution in the short run may be much greater.

Contribution at Stake



Our cost estimates are derived from published studies of marginal costs of telephone usage. "Long-run marginal cost" is the economic measure of how costs vary in the long run when output varies. It is the appropriate cost concept for assessing the effects of competition.⁹ The lower cost estimate in the figure is based on a study by Michael J. Marcus and Thomas C. Spavins of the FCC.¹⁰ The other cost estimate is designed to be conservatively high; it provides a conservatively low estimate of the amount at stake as a result of competition.¹¹

The figure also shows two estimates of net revenues at stake. Net revenues range from \$18.3 billion to \$21.1 billion per year.¹² This is our estimate of the amount that the telephone industry has at stake as a result of competition.

IV. Analogy to Regulated Competition in the Railroad Industry

The analogy between current policy directions in telecommunications and historical regulation of the railroad industry is disturbing, indeed, frightening. Telecommunications policy-makers need to understand clearly what went wrong with railroad regulation so as not to repeat the same mistakes.

⁹For discussion of the appropriateness of marginal costs for economic analysis, see Alfred E. Kahn, *The Economics of Regulation: Principles and Institutions*, Vol. I (New York: John Wiley & Sons, Inc.), 1970, pp. 65-70.

¹⁰"The Impact of Technical Change on the Structure of the Local Exchange and the Pricing of Exchange Access: An Interim Assessment," unpublished draft. The estimation of the contribution at stake is only a small part of the Marcus - Spavins paper. The paper discusses a variety of new technologies; e.g., digital switching, fiber optics, and wireless systems. It then shows how these technologies, together with competition, will revolutionize the telephone industry.

¹¹The Staff of the Federal Trade Commission recently prepared an analysis of the overpricing of toll calls and switched access services that confirms our assumptions. They found that switched access is priced significantly above cost and that the cross-subsidy from long distance to local service is still large. In addition, they use cost estimates similar to those we have used in our analysis. For example, they estimate the marginal cost of switched access and toll to be \$0.124 per call (expressed in 1983 dollars). Since they assumed an average call duration of five minutes, this implies a marginal cost of about \$0.025 per minute. Federal Communications Commission, *In the matter of Expanded Interconnection with Local Telephone Company Facilities and Amendment of Part 36 of the Commission's Rules and Establishment of a Joint Board*, CC Docket No. 91-141 Transport Phases I and II, CC Docket No. 80-286, Comment of the Staff of the Bureau of Economics of the Federal Trade Commission (Mar. 5, 1993).

¹²This contribution differs from the detail in the figure because of rounding.

In the early part of this century, railroads had a virtual monopoly on many types of transportation. Alternatives were generally slow, expensive, and unreliable.

In this environment, the Interstate Commerce Commission developed and pursued the concept of "value of service" pricing. Rates for shipping manufactured goods were set high so as to support low prices for shipping bulk commodities and agricultural goods.

With the advent of trucking competition, this artificial price structure collapsed. In retrospect, it is clear what regulators should have done to deal with the problem. They should have allowed railroads to lower rates for shipping manufactured goods; so railroads could remain competitive. They should have raised rates for shipping bulk commodities and agricultural goods; so railroads could cover their costs, including their cost of capital. If these policies had been pursued, a high-quality rail system could have been preserved in the United States.

In reality, unfortunately, regulators had no plan for dealing with the collapse of the pre-competitive price structure. They acceded to the pleas of competitors and refused to let railroads lower rates for manufactured goods. They were unwilling to take the politically unpopular steps of raising rates for shipping bulk commodities and agricultural goods.¹³ The rest is history.¹⁴

It is worth noting that, despite regulatory efforts to the contrary, many shippers of manufactured goods did enjoy lower shipping rates. They did so by using trucking rather than railroads. Shippers of bulk commodities and agricultural goods were hurt in the long run by the deterioration of rail transportation. Indeed, they suffered the most, since they had no viable alternative to rail. Thus, the regulatory goals embodied in value-of-service pricing were not achieved. All that was achieved was the destruction of quality rail service in the United States.

¹³For further detail on the history of regulated competition in railroads, see John R. Meyer, Merton J. Peck, John Stenason and Charles Zwick, *The Economics of Competition in the Transportation Industries* (Cambridge: Harvard University Press, 1959).

¹⁴The decline of the railroad industry is sometimes blamed on poor management. There is some truth to this claim in the later years of regulated competition. One should note, however, that prior to trucking competition, many of the major railroads had excellent management. Unfortunately, after decades of financial decline with no regulatory relief in sight, the railroads were no better able to attract good managers than they were to attract capital. Thus, the deterioration of rail service in the United States is fundamentally a regulatory failure, not a management failure.

V. Conclusion

A similar risk exists today in the telecommunications industry as public policymakers introduce competition into the local exchange marketplace. Competition will surely cause today's artificial pricing structure to collapse. As shown above, the industry will have approximately \$20 billion at stake when that happens.

Policymakers need to plan *now* for a smooth transition to a competitive pricing. That is the only way to avoid serious dislocations for the industry and its customers. Ignoring this problem will result in a repetition of the painful history of railroad regulation in the United States. Once again, customers without viable alternatives will suffer the most.

APPENDIX

Table 1 shows the calculations we made.¹ Revenues data were obtained from the FCC's *Statistics of Common Carriers* for 1991 and pertain to all reporting local telephone companies. Average intraLATA toll revenue per minute of calling is about \$0.1176.² Average interstate switched access revenue per minute of calling is \$0.0716 (both ends). Average intrastate switched access revenue per minute of calling is \$0.1053 (both ends).

While special access and private line revenues are also at risk as these services have already been opened to competition, they are not included in our analysis because we are estimating the effect of proposals to open switched services to greater competition. Other local service revenues such as the monthly charge for telephone service are also increasingly subject to competition. However, we have limited our analysis to the switched usage services (access and intraLATA toll) that are most directly affected by current proposals for increased competition. Our analysis thus includes both the traffic sensitive as well as the non-traffic sensitive costs that have been recovered through these switched usage services but does not otherwise include the costs of the local loop.

Next we will look at the underlying costs of providing this service. The appropriate measure of cost is the long-run marginal cost, that is, the additional long-run cost to the local telephone companies of providing additional switched access. Some publicly available estimates can be used to show the range of long-run incremental costs of switched access. Bridger Mitchell of the RAND Corporation completed an important study of incremental costs in 1990 using California data.³ He found that the long-run incremental cost of local usage is between

¹Our methodology resembles that used by Michael J. Marcus and Thomas C. Spavins, "The Impact of Technical Change on the Structure of the Local Exchange and the Pricing of Exchange Access: An Interim Assessment," unpublished draft. We use Marcus and Spavins' estimate as our high-end estimate of the amount at risk.

²We expressed intraLATA toll revenue on a per minute basis by assuming intraLATA calls average 4 minutes in length. This assumption is warranted for several reasons. First, Mitchell's data from California show an average intraLATA toll call lasts four minutes. Second, this assumption is consistent with the duration of interstate calls. Third, several of the large local telephone companies with which we have checked confirm the validity of this assumption for their own intraLATA calls.

³Bridger M. Mitchell, *Incremental Costs of Telephone Access and Local Use* (Santa Monica, Calif.: The RAND Corporation, 1990).

IntraLATA Toll Revenues (1991)	
\$ 10,981,141,000	Long-distance message revenues (class A)
23,337,553,000	IntraLATA toll calls completed (originating)
186,700,424,000	Equivalent billed access minutes (4 min./call)
\$0.4705	Average intraLATA toll message revenue per call
\$0.1176	Average intraLATA toll message revenue per minute of calling (4 min./call)
Interstate Switched Access Revenues (1991)	
\$ 10,952,789,000	Interstate switched access revenues
305,745,611,000	Interstate interLATA billed access minutes (originating and terminating)
\$0.0716	Average access revenue per minute of calling
Intrastate Switched Access Revenues (1991)	
\$ 6,433,693,000	State access revenues
81.6%	Switched access proportion of total
\$ 5,249,893,488	Intrastate switched access revenues
99,710,437,000	Intrastate interLATA billed access minutes (originating and terminating)
\$0.1053	Average access revenue per minute of calling
Incremental Costs	
\$0.0260	Incremental cost per minute of calling
\$0.0030	Metering and billing cost per minute of calling (\$0.012 per 4 min. call, for intraLATA toll only)
\$0.0100	Transport cost per minute of calling (for intraLATA toll only)
Contribution at Risk	
\$0.0617	Contribution generated from switched services (per minute)
\$ 18.3 billion	Contribution generated from switched services (aggregate)

Table 1- Switched services amount at risk calculation (conservative estimate)

\$0.00025 and \$0.0005 per minute.⁴ For calls that travel between 9 and 16 miles, he found the long-run incremental cost to be between \$0.00175 and \$0.003 per minute. For longer haul calls, he found the long-run incremental cost to be between \$0.0015 and \$0.003 per minute.

⁴Mitchell's numbers assume 100 calls per month. We have assumed a 4-minute average call (consistent with his data) to express his per call numbers on a per minute basis.

Lewis J. Perl and Jonathan Falk estimated costs using econometric methods.⁵ Their analysis suggested a long-run marginal cost of \$0.01 to \$0.03 per minute, which is somewhat higher than Mitchell's per call numbers that were calculated using an engineering estimation approach.

By taking the high end of these estimates one can calculate a conservative estimate of the contribution generated from switched access: namely \$0.013 at each end. For intraLATA tolls we add another \$0.003 for metering and billing costs and \$0.01 for transport. The contribution is \$0.0617 per minute. Multiplying this by the intraLATA toll and interstate and intrastate access minutes gives our estimate of the total contribution provided from these services. This amounts to approximately \$18.3 billion per year. This is a conservative estimate of the amount by which access and intraLATA toll prices might fall as the provision of switched services becomes more competitive.

Marcus and Spavins estimate marginal cost of access and toll to be \$0.01 at each end. They add another \$0.005 per message for metering, billing, and collection for intraLATA toll calls. The addition amounts to \$0.00125 per minute, assuming, as before, that calls average 4 minutes in length. The Marcus-Spavins methodology, applied to 1991 data, yields an estimate of \$21.1 billion contribution.⁶

⁵Lewis J. Perl and Jonathan Falk, "The Use of Econometric Analysis in Estimating Marginal Cost," presented at the Bellcore and Bell Canada Industry Forum, San Diego, California (Apr. 6, 1989).

⁶In their paper, Marcus and Spavins use 1990 data and estimate the contribution to be \$21.4 billion.



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July 19, 1993

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Mr. Richard O. Caulkins
Vice President - Policy Development
United States Telephone Association
900 19th Street, N. W. Suite 800
Washington, D. C. 20016-2190

Dear Dick

The Monson-Rohlf's paper developed the contribution that is contained in access and intraLATA toll rates. This contribution, defined as the difference between revenue and costs for a service, is at risk as these services become subject to increased competition. Bellcore was asked whether it could gather any data from the local exchange carrier(LEC) industry that might show the order of magnitude and direction of contribution flows between all LEC services.

The major LECs were contacted to see whether any recent studies existed that might show these contribution flows. Some LECs perform embedded fully-distributed cost of service studies for either state regulatory or internal management purposes. Results of these types of studies were collected from six regional Bell companies and one other major LEC, which serve customers in 30 states. These companies serve about 55% of the subscriber lines in the United states.

The LECs were asked to group their revenues and costs into 7 major service categories. While some LECs have studies with many more service categories, these 7 seemed to be ones that were representative of all. The categories defined in this study are as follows:

Residence Customer Access - These are the total cost involved in getting from the residential customers' premises to the local central office, including the fixed portion of the central office. The revenues associated with this category are those for flat rate residential service, the fixed monthly portion of measured rate residential service, and the interstate (and intrastate, if appropriate) end user charge.

Business Customer Access - The costs and revenues are the same as described above for Residence Customer Access except for business exchange service.

Interstate & State Switched Access - The costs involved are for the provision of traffic sensitive switched access for both interstate and state access service. The revenues in this category include interstate and state traffic sensitive switched

access, as well as the usage sensitive portion of common line revenues, primarily billed to interexchange carriers.

Interstate & State Special Access - The costs involved are for the provision of special access for both interstate and state access service. The revenues in this category include interstate and state special access revenues, primarily from interexchange carriers.

State Toll - The costs and revenues are those associated with the provision of intraLATA toll.

State Private Line - The costs and revenues are those associated with the provision of intraLATA private line services.

Other - This category includes the costs and revenues associated with all other services provided by the local telephone companies. This consists mainly of the costs and revenues of the usage portion of local measured service and vertical service, such as Touch-Tone, custom calling, directory, operator services, etc.

In order to develop results which would be representative of the entire LEC industry, the aggregated results were expanded by a factor which is the ratio of total industry subscriber loops to the subscriber loops for those companies having data in the study. The results of this analysis are contained in the attached chart.

The results portray, on a "rough justice" basis, the direction and order of magnitude of the contribution flows.



F. W. Nolte
Executive Director
Access and Separations Support

att

CONTRIBUTION ANALYSIS

(Dollars in Billions)

	<u>REVENUES</u>	<u>COSTS</u>	<u>CONTRIBUTION</u>
Customer Access			
Residence	15.8	33.2	(17.4)
Business	11.3	12.2	(0.8)
Interstate & State Access			
Switched	17.4	8.0	9.4
Special	3.6	3.2	0.4
State Toll	12.4	6.6	5.8
State Private Line	3.1	3.9	(0.8)
Other	28.5	24.9	3.6
Total	92.1	92.1	0.0

INTERCONNECTION EXPOSURE

A United States Telephone Association (USTA) study of 6818 telephone switching locations, representing approximately 33% of all such locations in the U.S., shows that competitive access providers collocating in only 14% of the 6818 locations can address 80% of all access traffic in those locations.

BACKGROUND

In order to measure the loss of access traffic Local Exchange Carriers (LECs) may face in a competitive environment USTA solicited data from the nine LECs required by the Federal Communications Commission (FCC) to provide collocation.

The responding companies represent 6818 switching locations, or about 1/3 of the total switching locations in the US. Nine hundred fifty seven (957) or 14.0% of the 6818 switching locations have collocation, requests for collocation, or a customer who has expressed interest in collocation.

To measure the risk of lost access traffic the companies reported the number of DS1 equivalents in total switching locations, compared to the number of DS1 equivalents in collocation switching locations. A DS1 is a transport facility capable of providing 24 voice channels. These reports were separated between switched access and special access.

METHODOLOGY

For purposes of this study a DS1 equivalent is considered to be 9,000 minutes of use (MOU) per circuit per month (216,000 MOU per DS1). This is the formula used by the FCC in several proceedings including CC Docket 91-213, Local Transport. In order for a competitive access provider to have an economic incentive to aggregate traffic there must be adequate volume. LECs are vulnerable because where competitors are collocating is where traffic volume is highest.

Therefore, as this study indicates, almost 80% of the access traffic is at risk even though collocation is present in only 14% of the offices.

INTERCONNECTION EXPOSURE

ROLL UP OF 9 COMPANIES REPORTING

1.	NUMBER OF COLLOCATION SWITCHING LOCATIONS	957
2.	TOTAL SWITCHING LOCATIONS	6818
3.	PER CENT (1/2)	14.0 %
4.	SWITCHED DS1 EQUIVALENTS IN COLLOCATION SWITCHING LOCATIONS	132,666
5.	TOTAL SWITCHED DS1 EQUIVALENTS	200,694
6.	PER CENT (4/5)	66.1 %
7.	SPECIAL DS1 EQUIVALENTS IN COLLOCATION SWITCHING LOCATIONS	344,117
8.	TOTAL SPECIAL DS1 EQUIVALENTS	397,061
9.	PER CENT (7/9)	86.7 %
10.	COMBINED SWITCHED AND SPECIAL IN COLLOCATION SWITCHING LOCATIONS	476,783
11.	TOTAL SWITCHED AND SPECIAL DS1 EQUIVALENTS	597,755
12.	PER CENT (10/11)	79.8 %